

BUREAU OF AIR POLLUTION CONTROL

901 South Stewart Street, Suite 4001 • Carson City, NV 89701-5249
phone: 775-687-9350 • www.ndep.nv.gov/bapc • fax: 775-687-6396

Facility ID No. A0002

Permit No. AP1041-2219

MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Newmont Mining Corporation, Gold Quarry Operations Area

(HEREINAFTER REFERRED TO AS **THE PERMITTEE**)

Mailing Address: 1655 MOUNTAIN CITY HIGHWAY
ELKO, NEVADA 89801-2800

Physical Address: 6 MILES NORTHWEST OF CARLIN, NEVADA, OFF OF S.R. 766 (INTERSTATE 80, EXIT 280)

General Facility Location: SECTION 1 OF T33N, R51E, MDB&M
SECTION 36 OF T34N, R51E, (HA 51, MAGGIE CREEK BASIN) (EUREKA COUNTY)
NORTH 4,514,776 M, EAST 568,699 M, UTM ZONE 11 (NAD 83)

Thermal Unit List: (3 Thermal Units)

L. System 12 – Refinery Mercury Retort Circuit (System 94 in Air Quality Operating Permit to Construct AP1041-2971)

TU	4.029	Mercury Retort Furnace (510-FC-100) (S2.225)
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M. System 13 – Refinery Mercury Retort Circuit (System 95 in Air Quality Operating Permit to Construct AP1041-2971)

TU	4.030	Mercury Retort Furnace (510-FC-200) (S2.226)
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N. System 14 – Refinery Mercury Retort Circuit (System 96 in Air Quality Operating Permit to Construct AP1041-2971)

TU	4.031	Mercury Retort Furnace (510-FC-300) (S2.227)
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Section I. General Conditions

The Permittee must comply with, but is not limited to, all conditions of Nevada Administrative Code (NAC) 445B.3611-3689 "Nevada Mercury Air Emissions Control Program", inclusive.

A. Records Retention. NAC 445B.3679.2(a)

The Permittee of a Mercury Operating Permit to Construct shall retain records of all required monitoring data and support information for (5) years after the date of the sample collection, measurement, report or analysis. Supporting information includes, without limitation, all records regarding calibration and maintenance of the monitoring equipment and all original strip-chart recordings for continuous monitoring instrumentation.

B. Severability. NAC 445B.3679.2(b)

Each of the conditions and requirements of the Mercury Operating Permit to Construct is severable and, if any are held invalid, the remaining conditions and requirements continue in effect.

C. Compliance/Noncompliance. NAC 445B.3679.2(c)

The Permittee must comply with all conditions of the Mercury Operating Permit to Construct. Any noncompliance constitutes a violation and is grounds for:

1. An action for noncompliance;
2. The revoking and reissuing, or the terminating of the Mercury Operating Permit to Construct by the Director; or
3. The reopening or revising of the Mercury Operating Permit to Construct by the holder of the Mercury Operating Permit to Construct as directed by the Director.

D. Defense to Noncompliance. NAC 445B.3679.2(d)

The need to halt or reduce activity to maintain compliance with the conditions of the Mercury Operating Permit to Construct is not a defense to noncompliance with any conditions of the Mercury Operating Permit to Construct.

E. Cause. NAC 445B.3679.2(e)

The Director may revise, revoke and reissue, reopen and revise, or terminate the Mercury Operating Permit to Construct for cause.

F. Property Rights/Exclusive Privilege. NAC 445B.3679.2(f)

The Mercury Operating Permit to Construct does not convey any property rights or any exclusive privilege.

G. Information Request from Director. NAC 445B.3679.2(g)

The Permittee shall provide the Director, in writing and within a reasonable time, with any information that the Director requests to determine whether cause exists for revoking or terminating the Mercury Operating Permit to Construct or to determine compliance with the conditions of this Mercury Operating Permit to Construct.

H. Right to Entry. NAC 445B.3679.2(h)

The Permittee shall allow the Director or any authorized representative of the Director, upon the presentation of credentials, to:

1. Enter upon the premises of *the Permittee* where:
 - a. The thermal unit that emits mercury is located;
 - b. Activity related to mercury emissions is conducted; or
 - c. Records are kept pursuant to the conditions of the Mercury Operating Permit to Construct.
2. Have access to and copy, during normal business hours, any records that are kept pursuant to the conditions of the Mercury Operating Permit to Construct;
3. Inspect, at reasonable times, any facilities, practices, operations, or equipment, including any equipment for monitoring or controlling air pollution, that are regulated or required pursuant to the Mercury Operating Permit to Construct; and
4. Sample or monitor, at reasonable times, substances or parameters to determine compliance with the conditions of the Mercury Operating Permit to Construct or applicable requirements.



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Section I. General Conditions (continued)

I. Certify True and Accurate. NAC 445B.3679.2(i)

A responsible official of the stationary source shall certify that, based on information and belief formed after reasonable inquiry, the statements made in any document required to be submitted by any condition of the Mercury Operating Permit to Construct are true, accurate and complete.

J. Yearly Reporting. NAC 445B.3679.3(b, c, d)

The Permittee will submit yearly reports including, but not limited to, throughput, production, fuel consumption, hours of operation, emissions and mercury co-product. These reports will be submitted on the form provided by the Bureau of Air Pollution Control for all emission units/systems specified on the form. The completed form must be submitted to the Bureau of Air Pollution Control no later than March 1 annually for the preceding calendar year, unless otherwise approved by the Bureau of Air Pollution Control.

K. Facilities Operation. NAC 445B.227

The Permittee may not:

1. Operate a stationary source of air pollution unless the control equipment for air pollution that is required by applicable requirements or conditions of the Mercury Operating Permit to Construct are installed and operating.
2. Disconnect, alter, modify or remove any of the control equipment for air pollution or modify any procedure required by an applicable requirement or condition of the Mercury Operating Permit to Construct.

L. Excess Emissions. NAC 445B.232

1. Scheduled maintenance or testing or scheduled repairs which may result in excess emissions of regulated air pollutants prohibited by NAC 445B.001 to 445B.3689, inclusive, must be approved by the Director and performed during a time designated by the Director as being favorable for atmospheric ventilation.
2. The Director must be notified in writing of the time and expected duration at least 24 hours in advance of any scheduled maintenance which may result in excess emissions of regulated air pollutants prohibited by NAC 445B.001 to 445B.3689, inclusive.
3. The Director must be notified in writing or by telephone of the time and expected duration at least 24 hours in advance of any scheduled repairs which may result in excess emissions of regulated air pollutants prohibited by NAC 445B.001 to 445B.3689, inclusive.
4. The Director must be notified of any excess emissions within 24 hours after any malfunction or upset of the process equipment or equipment for controlling pollution or during startup or shutdown of such equipment. The telephone number for the notification is (775) 687-9350.
5. **The Permittee**, as the owner or operator of an affected facility, shall provide the Director, within 15 days after any malfunction, upset, startup, shutdown, or human error which results in excess emissions, sufficient information to enable the Director to determine the seriousness of the excess emissions. The information must include at least the following:
 - a. The identity of the stack or other point of emission, or both, where the excess emissions occurred.
 - b. The estimated magnitude of the excess emissions expressed in units of the applicable limitation on emission and the operating data and methods used in estimating the magnitude of the excess emissions.
 - c. The time and duration of the excess emissions.
 - d. The identity of the equipment causing the excess emissions.
 - e. If the excess emissions were the result of a malfunction, the steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of the malfunction.
 - f. The steps taken to limit the excess emissions.
 - g. Documentation that the equipment for controlling air pollution, process equipment, or processes were at all times maintained and operated, to a maximum extent practicable, in a manner consistent with good practice for minimizing emissions.



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Section I. General Conditions (continued)

M. Construction Requirements: New or Modified Thermal Units. NAC 445B.250

The Permittee shall provide the Director written notification of:

1. The date that construction or reconstruction of an affected facility is commenced postmarked no later than 30 days after such date. This requirement shall not apply to mass-produced facilities which are purchased in completed form.
2. The anticipated date of initial startup of an affected facility, postmarked not more than 60 days and not less than 30 days prior to such date.
3. The actual date of initial startup of an affected facility, postmarked within 15 days after such date.

N. Annual Testing.

Before the conclusion of each calendar year, *the Permittee* shall:

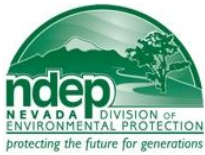
1. Conduct and record a Method 29 (or alternative test method approved by the Director) compliance test for mercury on the exhaust stack of Systems 12 - 14 consisting of three valid runs. Each of the three test runs must collect a sample volume of 1.7 dry standard cubic meters (60 dscf) or be conducted for up to two hours in an effort to collect this sample volume (NAC 445B.3679.3).
2. Simultaneously, during the Method 29 (or alternative test method approved by the Director) compliance test, conduct and record a material assay from Systems 12 - 14. One representative sample shall be taken for each test run. Total mercury content shall be determined using EPA Method 7471B (cold vapor atomic adsorption analysis) (or alternative test method approved by the Director) (NAC 445B.3679.3).
3. Conduct tests of performance under such conditions as the Director specifies to the operator of the plant based on representative performance of the affected facility. The owner or operator shall make available to the Director such records as may be necessary to determine the conditions of the test of performance. Operations during periods of startup, shutdown and malfunction must not constitute representative conditions of a test of performance unless otherwise specified in the applicable standard (NAC 445B.252.3).
4. Give notice to the Director 30 days before the test of performance to allow the Director to have an observer present. A written testing procedure for the test of performance must be submitted to the Director at least 30 days before the test of performance to allow the Director to review the proposed testing procedures (NAC 445B.252.4).
5. Furnish the Director within 60 days after completing the performance tests a written and electronic report of the results of the performance tests. All information and analytical results of testing and sampling must be certified as to the truth and accuracy and as to their compliance with NAC 445B.001 to 445B.3689 (NAC 445B.252.8).

O. SIP Article 2.5.4 Federally Enforceable SIP Requirement.

Breakdown or upset, determined by the Director to be unavoidable and not the result of careless or marginal operations, shall not be considered a violation of these regulations.

P. Expiration and Extension. NAC 445B.3687

1. If construction will occur in one phase, a mercury operating permit to construct for a new or modified thermal unit that emits mercury expires if construction is not commenced within 18 months after the date of issuance thereof or construction of the thermal unit that emits mercury is delayed for 18 months after initiated. The Director may extend the date on which the construction may be commenced upon a showing that the extension is justified.
2. If construction will occur in more than one phase, the projected date of the commencement of construction of each phase of construction must be approved by the Director. A mercury operating permit to construct expires if the initial phase of construction is not commenced within 18 months after the projected date of the commencement of construction approved by the Director. The Director may extend only the date on which the initial phase of construction may be commenced upon a showing that the extension is justified.



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Section I. General Conditions (continued)

Q. Construction Requirements. NAC 445B.250

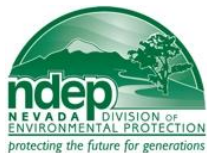
1. The NvMACT for **TU 4.029 through TU 4.031 each**, must be implemented upon start-up after the issuance of this mercury operating permit to construct (NAC 445B.3679.3(a)(2)(i)).
 - a. The issuance date for **TU 4.029 through TU 4.031** is **April xx, 2012.**
2. The **Permittee** shall provide the Director written notification of :
 - a. The date of start-up for **TU 4.029 through TU 4.031**, each, pursuant to NAC 445B.3679.3(a)(2)(i) postmarked within 15 days after such date (NAC 445B.3679.2(g)).

R. Annual Reporting.

The Permittee shall:

1. Report mercury co-product on an annual basis (NAC 445B.3679(3)(d)).
2. Report the level of mercury emissions on an annual basis, which must be based on mercury emissions test data (NAC 445B.3679(3)(c)).

******* End of General Conditions *******



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Section II. Specific Operating Conditions

L. Thermal Units # TU4.029 location North 4,514,900 m East 568,500 m, UTM (Zone 11)

L. System 12 – Refinery Mercury Retort Circuit (System 94 in Air Quality Operating Permit to Construct AP1041-2971)

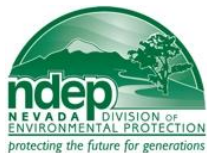
TU	4.029	Mercury Retort Furnace (510-FC-100) (S2.225)
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1. Air Pollution Equipment

- a. Exhaust gases from TU4.029 shall be ducted to a control system with 100% capture consisting of:
 - i. **Mercury Condenser (MC-001)**, manufactured by Lochhead – Haggerty, (operation in series with MC-002).
 - ii. **Mercury Condenser (MC-002)**, manufactured by Lochhead – Haggerty, (operation in series with MC-001).
 - iii. **Chiller**, manufactured by Carrier.
 - iv. **Condensation Vessel (CV-001)**, manufactured by Lochhead – Haggerty.
 - v. **After Cooler with Mist Eliminator (AC-001)**, manufactured by Lochhead – Haggerty.
 - vi. **Carbon Filter Column with Sulfur-Impregnated Carbon (CF-006)**, manufactured by Lochhead – Haggerty, (operation in parallel with CF-007).
 - vii. **Carbon Filter Column with Sulfur-Impregnated Carbon (CF-007)**, manufactured by Lochhead – Haggerty, (operation in parallel with CF-006).
- b. Stack parameters
 - i. Height: 32.0 ft
 - ii. Diameter: 0.17 ft
 - iii. Max Stack temperature: 125°F
 - iv. Flow: Maximum volume flow rate of 31.2 dry standard cubic feet per minute (dscfm).
 - v. TU4.029 is ducted to a single stack.

2. Operating Requirements

- a. Limitations of Operation NAC 445B.3679.3
 - i. The maximum allowable batch weight of **precious metal bearing material or concentrate** for TU4.029 shall not exceed **1.65 tons per batch**. “Precious metal precipitate” shall consist only of the following:
 - (a) Material loaded with precious metals such as gold and silver, along with various other metals that is produced by electrowinning, the Merrill-Crowe process, flotation and gravity separation processes, and other gold concentration or precipitation processes.
 - (b) Material collected from the wash-down of any equipment or surfaces contacted with precious metals that have been concentrated through the various concentration methods employed by precious metal mines.
 - ii. Mercury emissions from TU4.029 shall not exceed **1.0 x 10⁻⁴** grains per dry standard cubic foot (gr/dscf).
 - iii. **Precious metal bearing material or concentrate** shall be retorted in pans specified by the retort manufacturer and not exceed the volume capacity specified by the manufacturer, per pan.
 - iv. Hours
 - (a) TU4.029 may operate a total of **8,760** hours per calendar year.



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Section II. Specific Operating Conditions (continued)

L. Thermal Units # TU4.029 (continued)

2. Operating Requirements (continued)

b. Work Practice Standards NAC 445B.3679.3

- i. **TU4.029, MC-001, MC-002, CV-001, AC-001, CF-006, and CF-007** shall be operated in accordance with the manufacturer's recommendations at all times during operation, including start-up and shut-down periods.
- ii. During heating **TU4.029** shall be placed under negative gauge pressure between 1 to 24 inches of mercury.
- iii. **TU4.029** shall automatically shut off when the negative gauge pressure is below 1 inches of mercury.
- iv. The cooling water flow rate entering **MC-001, MC-002, and AC-001** shall be maintained at or above 15 gallons per minute.
- v. **TU4.029** shall automatically shut off if the condenser water flow is absent.
- vi. The water temperature exiting the chiller shall be maintained at or below 60°F.
- vii. Condensed mercury from **MC-001 and MC-002** shall be collected weekly.
- viii. The exhaust gas temperature leaving **AC-001** shall be maintained at or below 100°F.
- ix. **TU4.029** shall automatically shut off if the exhaust gas temperature reaches 125°F.
- x. **CF-006** shall contain no less than 100 pounds of sulfur-impregnated carbon.
- xi. **CF-007** shall contain no less than 100 pounds of sulfur-impregnated carbon.
- xii. Replace the sulfur-impregnated carbon in **CF-006 and CF-007**, each, according to the following schedule:
 - (a) Conduct an initial sampling of the sulfur-impregnated carbon within 90 days after the startup of the retort. A representative sample shall be taken and analyzed. The depth of the sample location shall be recorded. Using this sample the percentage of mercury by weight shall be calculated. If more than one sample is taken, calculate an average loading from the samples. Sampling will continue quarterly, at the same sample depth location, until reaching 50% of the carbon loading capacity. Upon reaching 50% of the carbon loading capacity, sampling of the carbon will occur monthly until 90% of the carbon loading capacity is reached. The carbon will be replaced with an equivalent performing sulfur impregnated carbon no later than 30 days after reaching 90% of the carbon loading capacity. The required mercury analysis shall be performed utilizing one of the following methods:
 1. EPA method 6020-Inductively Coupled Plasma-Mass Spectrometry;
 2. EPA method 7471B- Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique); or
 3. An alternative test method as approved in advance by the Director.
- xiii. Any sulfur impregnated carbon replaced in **CF-006 and CF-007** shall be replaced with only the original manufacturer's design specification sulfur impregnated carbon, or equivalent.

3. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3379.3)

a. Compliance Testing

Within 180 days of start-up for **TU4.029** as required in Section I.Q, of this section, the *Permittee* shall conduct and record a performance test for mercury on the exhaust stack of **TU4.029** consisting of three valid runs utilizing US EPA Method 29 of 40 CFR part 60 Appendix A.

b. Monitoring

The *Permittee* shall:

- i. Prior to commencement of **TU4.029**, install, operate, calibrate, and maintain instrumentation to continuously measure and record the following:
 - (a) The gauge pressure of **TU4.029**, in inches of mercury.
 - (b) The cooling water flow rate entering **MC-001, MC-002, and AC-001** in gallons per minute..
 - (c) The exhaust gas temperature exiting **AC-001**, in degrees Fahrenheit.
 - (d) The cooling water temperature exiting the chiller, in degrees Fahrenheit.



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Section II. Specific Operating Conditions (continued)

L. Thermal Units # TU4.029 (continued)

3. Compliance, Monitoring, Recordkeeping and Testing (NAC 445B.3379.3) (continued)

b. Monitoring (continued)

- ii. Prior to commencement of **TU4.029**, install, operate, calibrate, and maintain a vacuum interlock that shall shut off the retort heating element if the retort gauge pressure is less than 1 inches of Hg of vacuum.
- iii. Prior to commencement of **TU4.029**, install, operate, calibrate, and maintain a condenser water flow interlock which shall shut off the retort heating element if condenser water flow is not present.
- iv. Prior to commencement of **TU4.029**, install, operate, calibrate, and maintain an exhaust gas temperature alarm which shall notify the operator when the exhaust gas from **AC-001** equals a temperature of 100°F or more.
- v. Prior to commencement of **TU4.029**, install, operate, calibrate, and maintain an exhaust gas temperature interlock which shall shut off the retort heating element if the temperature equals a temperature of 125°F or more.
- vi. Monitor the daily batch weight of **precious metal bearing material or concentrate**, in tons, for each batch.
- vii. Monitor the daily hours for each batch, during each day of operation.
- viii. Monitor the gauge pressure on **TU4.029**, continuously per batch during operation.
- ix. Monitor the cooling water flow rate entering **MC-001, MC-002, and AC-001** continuously per batch during operation.
- x. Monitor the water temperature exiting the chiller, continuously per batch during operation.
- xi. Monitor the amount of mercury drained from **MC-001 and MC-002** weekly.
- xii. Monitor the exhaust gas temperature exiting **AC-001**, continuously per batch during operation.
- xiii. Monitor **CF-006** and **CF-007** for percentage of mercury by weight, quarterly until reaching 50 percent capacity and then monthly until reaching 90 percent capacity.

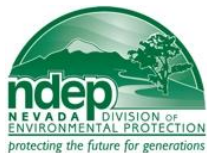
c. Recordkeeping

The required monitoring, established in Section L.3.b.i through xiii, shall be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

- i. The calendar date of any required monitoring.
- ii. The total batch weight of **precious metal bearing material or concentrate** per batch, in tons, for the corresponding date.
- iii. The total daily hours of operation per batch, for the corresponding date.
- iv. The gauge pressure on **TU4.029**, based on a one-hour period, for the corresponding date.
- v. The cooling water flow entering **MC-001, MC-002, and AC-001** based on a one-hour period, for the corresponding date.
- vi. The water temperature exiting the chiller, based on a one-hour period, for the corresponding date.
- vii. The amount of mercury collected from **MC-001 and MC-002**, weekly for the corresponding date.
- viii. The exhaust gas temperature exiting **AC-001**, based on a one-hour period, for the corresponding date.
- ix. The date, time, and weight of each sulfur-impregnated carbon replacement for **CF-006**.
- x. The date, time, and weight of each sulfur-impregnated carbon replacement for **CF-007**.
- xi. The original manufacturer's design specifications for the sulfur impregnated carbon used in **CF-006** and **CF-007** shall be kept on site.
- xii. The manufacturer's specified heating temperature profiles for the **TU4.029** shall be kept on site.
- xiii. The percentage of mercury by weight in the sulfur-impregnated carbon, for the corresponding date.
- xiv. The depth of the sample location, in each carbon column, for the corresponding date.
- xv. The date, time, and weight of each of each sulfur-impregnated carbon replacement.
- xvi. The date, time, and corrective action taken for an alarm notification or an interlock shut-down, for the corresponding date.

d. Reporting

Permittee will promptly report to the Director any deviations from the requirements of the Operating Permit to Construct. The report to the Director will include probable cause of all deviations and any action taken to correct deviations. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of said deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 and under condition I.L. of this permit.



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Section II. Specific Operating Conditions (continued)

M. Thermal Units # TU4.030 location North 4,514,900 m East 568,500 m, UTM (Zone 11)

M. System 13 – Refinery Mercury Retort Circuit (System 95 in Air Quality Operating Permit to Construct AP1041-2971)

TU	4.030	Mercury Retort Furnace (510-FC-200) (S2.226)
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1. Air Pollution Equipment

- a. Exhaust gases from **TU4.030** shall be ducted to a control system with 100% capture consisting of:
 - i. **Mercury Condenser (MC-003)**, manufactured by Lochhead – Haggerty, (operation in series with MC-004).
 - ii. **Mercury Condenser (MC-004)**, manufactured by Lochhead – Haggerty, (operation in series with MC-003).
 - iii. **Chiller**, manufactured by Carrier.
 - iv. **Condensation Vessel (CV-002)**, manufactured by Lochhead – Haggerty.
 - v. **After Cooler with Mist Eliminator (AC-002)**, manufactured by Lochhead – Haggerty.
 - vi. **Carbon Filter Column with Sulfur-Impregnated Carbon (CF-008)**, manufactured by Lochhead – Haggerty, (operation in parallel with CF-009).
 - vii. **Carbon Filter Column with Sulfur-Impregnated Carbon (CF-009)**, manufactured by Lochhead – Haggerty, (operation in parallel with CF-008).
- b. Stack parameters
 - i. Height: 32.0 ft
 - ii. Diameter: 0.17 ft
 - iii. Max Stack temperature: 125°F
 - iv. Flow: Maximum volume flow rate of 31.2 dry standard cubic feet per minute (dscfm).
 - v. **TU4.030** is ducted to a single stack.

2. Operating Requirements

- a. Limitations of Operation NAC 445B.3679.3
 - i. The maximum allowable batch weight of **precious metal bearing material or concentrate** for **TU4.030** shall not exceed **1.65 tons per batch**. “Precious metal precipitate” shall consist only of the following:
 - (a) Material loaded with precious metals such as gold and silver, along with various other metals that is produced by electrowinning, the Merrill-Crowe process, flotation and gravity separation processes, and other gold concentration or precipitation processes.
 - (b) Material collected from the wash-down of any equipment or surfaces contacted with precious metals that have been concentrated through the various concentration methods employed by precious metal mines.
 - ii. Mercury emissions from **TU4.030** shall not exceed **1.0 x 10⁻⁴** grains per dry standard cubic foot (gr/dscf).
 - iii. **Precious metal bearing material or concentrate** shall be retorted in pans specified by the retort manufacturer and not exceed the volume capacity specified by the manufacturer, per pan.
 - iv. Hours
 - (a) **TU4.030** may operate a total of **8,760** hours per calendar year.



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Section II. Specific Operating Conditions (continued)

M. Thermal Units # TU4.030 (continued)

2. Operating Requirements (continued)

b. Work Practice Standards NAC 445B.3679.3

- i. **TU4.030, MC-003, MC-004, CV-002, AC-002, CF-008, and CF-009** shall be operated in accordance with the manufacturer's recommendations at all times during operation, including start-up and shut-down periods.
- ii. During heating **TU4.030** shall be placed under negative gauge pressure between 1 to 24 inches of mercury.
- iii. **TU4.030** shall automatically shut off when the negative gauge pressure is below 1 inches of mercury.
- iv. The cooling water flow rate entering **MC-003, MC-004, and AC-002** shall be maintained at or above 15 gallons per minute.
- v. **TU4.030** shall automatically shut off if the condenser water flow is absent.
- vi. The water temperature exiting the chiller shall be maintained at or below 60°F.
- vii. Condensed mercury from **MC-003 and MC-004** shall be collected weekly.
- viii. The exhaust gas temperature leaving **AC-002** shall be maintained at or below 100°F.
- ix. **TU4.030** shall automatically shut off if the exhaust gas temperature reaches 125°F.
- x. **CF-008** shall contain no less than 100 pounds of sulfur-impregnated carbon.
- xi. **CF-009** shall contain no less than 100 pounds of sulfur-impregnated carbon.
- xii. Replace the sulfur-impregnated carbon in **CF-008 and CF-009**, each, according to the following schedule:
 - (a) Conduct an initial sampling of the sulfur-impregnated carbon within 90 days after the startup of the retort. A representative sample shall be taken and analyzed. The depth of the sample location shall be recorded. Using this sample the percentage of mercury by weight shall be calculated. If more than one sample is taken, calculate an average loading from the samples. Sampling will continue quarterly, at the same sample depth location, until reaching 50% of the carbon loading capacity. Upon reaching 50% of the carbon loading capacity, sampling of the carbon will occur monthly until 90% of the carbon loading capacity is reached. The carbon will be replaced with an equivalent performing sulfur impregnated carbon no later than 30 days after reaching 90% of the carbon loading capacity. The required mercury analysis shall be performed utilizing one of the following methods:
 1. EPA method 6020-Inductively Coupled Plasma-Mass Spectrometry;
 2. EPA method 7471B- Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique); or
 3. An alternative test method as approved in advance by the Director.
- xiii. Any sulfur impregnated carbon replaced in **CF-008 and CF-009** shall be replaced with only the original manufacturer's design specification sulfur impregnated carbon, or equivalent.

3. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3379.3)

a. Compliance Testing

Within 180 days of start-up for **TU4.030** as required in Section I.Q, of this section, the *Permittee* shall conduct and record a performance test for mercury on the exhaust stack of **TU4.030** consisting of three valid runs utilizing US EPA Method 29 of 40 CFR part 60 Appendix A.

b. Monitoring

The *Permittee* shall:

- i. Prior to commencement of **TU4.030**, install, operate, calibrate, and maintain instrumentation to continuously measure and record the following:
 - (a) The gauge pressure of **TU4.030**, in inches of mercury.
 - (b) The cooling water flow rate entering **MC-003, MC-004, and AC-002** in gallons per minute..
 - (c) The exhaust gas temperature exiting **AC-002**, in degrees Fahrenheit.
 - (d) The cooling water temperature exiting the chiller, in degrees Fahrenheit.



BUREAU OF AIR POLLUTION CONTROL

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MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Newmont Mining Corporation, Gold Quarry Operations Area.

Section II. Specific Operating Conditions (continued)

M. Thermal Units # TU4.030 (continued)

3. Compliance, Monitoring, Recordkeeping and Testing (NAC 445B.3379.3) (continued)

b. Monitoring (continued)

- ii. Prior to commencement of **TU4.030**, install, operate, calibrate, and maintain a vacuum interlock that shall shut off the retort heating element if the retort gauge pressure is less than 1 inches of Hg of vacuum.
- iii. Prior to commencement of **TU4.030**, install, operate, calibrate, and maintain a condenser water flow interlock which shall shut off the retort heating element if condenser water flow is not present.
- iv. Prior to commencement of **TU4.030**, install, operate, calibrate, and maintain an exhaust gas temperature alarm which shall notify the operator when the exhaust gas from **AC-002** equals a temperature of 100°F or more.
- v. Prior to commencement of **TU4.030**, install, operate, calibrate, and maintain an exhaust gas temperature interlock which shall shut off the retort heating element if the temperature equals a temperature of 125°F or more.
- vi. Monitor the daily batch weight of **precious metal bearing material or concentrate**, in tons, for each batch.
- vii. Monitor the daily hours for each batch, during each day of operation.
- viii. Monitor the gauge pressure on **TU4.030**, continuously per batch during operation.
- ix. Monitor the cooling water flow rate entering **MC-003, MC-004, and AC-002** continuously per batch during operation.
- x. Monitor the water temperature exiting the chiller, continuously per batch during operation.
- xi. Monitor the amount of mercury drained from **MC-003 and MC-004** weekly.
- xii. Monitor the exhaust gas temperature exiting **AC-002**, continuously per batch during operation.
- xiii. Monitor **CF-008 and CF-009** for percentage of mercury by weight, quarterly until reaching 50 percent capacity and then monthly until reaching 90 percent capacity.

c. Recordkeeping

The required monitoring, established in Section M.3.b.i through xiii, shall be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

- i. The calendar date of any required monitoring.
- ii. The total batch weight of **precious metal bearing material or concentrate** per batch, in tons, for the corresponding date.
- iii. The total daily hours of operation per batch, for the corresponding date.
- iv. The gauge pressure on **TU4.030**, based on a one-hour period, for the corresponding date.
- v. The cooling water flow entering **MC-003, MC-004, and AC-002** based on a one-hour period, for the corresponding date.
- vi. The water temperature exiting the chiller, based on a one-hour period, for the corresponding date.
- vii. The amount of mercury collected from **MC-003 and MC-004**, weekly for the corresponding date.
- viii. The exhaust gas temperature exiting **AC-002**, based on a one-hour period, for the corresponding date.
- ix. The date, time, and weight of each sulfur-impregnated carbon replacement for **CF-008**.
- x. The date, time, and weight of each sulfur-impregnated carbon replacement for **CF-009**.
- xi. The original manufacturer's design specifications for the sulfur impregnated carbon used in **CF-008 and CF-009** shall be kept on site.
- xii. The manufacturer's specified heating temperature profiles for the **TU4.030** shall be kept on site.
- xiii. The percentage of mercury by weight in the sulfur-impregnated carbon, for the corresponding date.
- xiv. The depth of the sample location, in each carbon column, for the corresponding date.
- xv. The date, time, and weight of each of each sulfur-impregnated carbon replacement.
- xvi. The date, time, and corrective action taken for an alarm notification or an interlock shut-down, for the corresponding date.

d. Reporting

Permittee will promptly report to the Director any deviations from the requirements of the Operating Permit to Construct. The report to the Director will include probable cause of all deviations and any action taken to correct deviations. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of said deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 and under condition I.L. of this permit.



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MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Newmont Mining Corporation, Gold Quarry Operations Area.

Section II. Specific Operating Conditions (continued)

N. Thermal Units # TU4.031 location North 4,514,900 m East 568,500 m, UTM (Zone 11)

N. System 14 – Refinery Mercury Retort Circuit (System 96 in Air Quality Operating Permit to Construct AP1041-2971)

TU	4.031	Mercury Retort Furnace (510-FC-300) (S2.227)
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1. Air Pollution Equipment

- a. Exhaust gases from **TU4.031** shall be ducted to a control system with 100% capture consisting of:
 - i. **Mercury Condenser (MC-005)**, manufactured by Lochhead – Haggerty, (operation in series with MC-006).
 - ii. **Mercury Condenser (MC-006)**, manufactured by Lochhead – Haggerty, (operation in series with MC-005).
 - iii. **Chiller**, manufactured by Carrier.
 - iv. **Condensation Vessel (CV-003)**, manufactured by Lochhead – Haggerty.
 - v. **After Cooler with Mist Eliminator (AC-003)**, manufactured by Lochhead – Haggerty.
 - vi. **Carbon Filter Column with Sulfur-Impregnated Carbon (CF-010)**, manufactured by Lochhead – Haggerty, (operation in parallel with CF-011).
 - vii. **Carbon Filter Column with Sulfur-Impregnated Carbon (CF-011)**, manufactured by Lochhead – Haggerty, (operation in parallel with CF-010).
- b. Stack parameters
 - i. Height: 32.0 ft
 - ii. Diameter: 0.17 ft
 - iii. Max Stack temperature: 125°F
 - iv. Flow: Maximum volume flow rate of 31.2 dry standard cubic feet per minute (dscfm).
 - v. **TU4.031** is ducted to a single stack.

2. Operating Requirements

- a. Limitations of Operation NAC 445B.3679.3
 - i. The maximum allowable batch weight of **precious metal bearing material or concentrate** for **TU4.031** shall not exceed **1.65 tons per batch**. “Precious metal precipitate” shall consist only of the following:
 - (a) Material loaded with precious metals such as gold and silver, along with various other metals that is produced by electrowinning, the Merrill-Crowe process, flotation and gravity separation processes, and other gold concentration or precipitation processes.
 - (b) Material collected from the wash-down of any equipment or surfaces contacted with precious metals that have been concentrated through the various concentration methods employed by precious metal mines.
 - ii. Mercury emissions from **TU4.031** shall not exceed **1.0 x 10⁻⁴** grains per dry standard cubic foot (gr/dscf).
 - iii. **Precious metal bearing material or concentrate** shall be retorted in pans specified by the retort manufacturer and not exceed the volume capacity specified by the manufacturer, per pan.
 - iv. Hours
 - (a) **TU4.031** may operate a total of **8,760** hours per calendar year.



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MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Newmont Mining Corporation, Gold Quarry Operations Area.

Section II. Specific Operating Conditions (continued)

N. Thermal Units # TU4.031 (continued)

2. Operating Requirements (continued)

b. Work Practice Standards NAC 445B.3679.3

- i. **TU4.031, MC-005, MC-006, CV-003, AC-003, CF-010, and CF-011** shall be operated in accordance with the manufacturer's recommendations at all times during operation, including start-up and shut-down periods.
- ii. During heating **TU4.031** shall be placed under negative gauge pressure between 1 to 24 inches of mercury.
- iii. **TU4.031** shall automatically shut off when the negative gauge pressure is below 1 inches of mercury.
- iv. The cooling water flow rate entering **MC-005, MC-006, and AC-003** shall be maintained at or above 15 gallons per minute.
- v. **TU4.031** shall automatically shut off if the condenser water flow is absent.
- vi. The water temperature exiting the chiller shall be maintained at or below 60°F.
- vii. Condensed mercury from **MC-005 and MC-006** shall be collected weekly.
- viii. The exhaust gas temperature leaving **AC-003** shall be maintained at or below 100°F.
- ix. **TU4.031** shall automatically shut off if the exhaust gas temperature reaches 125°F.
- x. **CF-010** shall contain no less than 100 pounds of sulfur-impregnated carbon.
- xi. **CF-011** shall contain no less than 100 pounds of sulfur-impregnated carbon.
- xii. Replace the sulfur-impregnated carbon in **CF-010** and **CF-011**, each, according to the following schedule:
 - (a) Conduct an initial sampling of the sulfur-impregnated carbon within 90 days after the startup of the retort. A representative sample shall be taken and analyzed. The depth of the sample location shall be recorded. Using this sample the percentage of mercury by weight shall be calculated. If more than one sample is taken, calculate an average loading from the samples. Sampling will continue quarterly, at the same sample depth location, until reaching 50% of the carbon loading capacity. Upon reaching 50% of the carbon loading capacity, sampling of the carbon will occur monthly until 90% of the carbon loading capacity is reached. The carbon will be replaced with an equivalent performing sulfur impregnated carbon no later than 30 days after reaching 90% of the carbon loading capacity. The required mercury analysis shall be performed utilizing one of the following methods:
 1. EPA method 6020-Inductively Coupled Plasma-Mass Spectrometry;
 2. EPA method 7471B- Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique); or
 3. An alternative test method as approved in advance by the Director.
- xiii. Any sulfur impregnated carbon replaced in **CF-010** and **CF-011** shall be replaced with only the original manufacturer's design specification sulfur impregnated carbon, or equivalent.

3. Compliance Testing, Monitoring, Recordkeeping and Reporting (NAC 445B.3379.3)

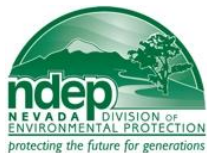
a. Compliance Testing

Within 180 days of start-up for **TU4.031** as required in Section I.Q, of this section, the **Permittee** shall conduct and record a performance test for mercury on the exhaust stack of **TU4.031** consisting of three valid runs utilizing US EPA Method 29 of 40 CFR part 60 Appendix A.

b. Monitoring

The **Permittee** shall:

- i. Prior to commencement of **TU4.031**, install, operate, calibrate, and maintain instrumentation to continuously measure and record the following:
 - (a) The gauge pressure of **TU4.031**, in inches of mercury.
 - (b) The cooling water flow rate entering **MC-005, MC-006, and AC-003** in gallons per minute..
 - (c) The exhaust gas temperature exiting **AC-003**, in degrees Fahrenheit.
 - (d) The cooling water temperature exiting the chiller, in degrees Fahrenheit.



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Issued to: Newmont Mining Corporation, Gold Quarry Operations Area.

Section II. Specific Operating Conditions (continued)

N. Thermal Units # TU4.031 (continued)

3. Compliance, Monitoring, Recordkeeping and Testing (NAC 445B.3379.3) (continued)

b. Monitoring (continued)

- ii. Prior to commencement of **TU4.031**, install, operate, calibrate, and maintain a vacuum interlock that shall shut off the retort heating element if the retort gauge pressure is less than 1 inches of Hg of vacuum.
- iii. Prior to commencement of **TU4.031**, install, operate, calibrate, and maintain a condenser water flow interlock which shall shut off the retort heating element if condenser water flow is not present.
- iv. Prior to commencement of **TU4.031**, install, operate, calibrate, and maintain an exhaust gas temperature alarm which shall notify the operator when the exhaust gas from **AC-003** equals a temperature of 100°F or more.
- v. Prior to commencement of **TU4.031**, install, operate, calibrate, and maintain an exhaust gas temperature interlock which shall shut off the retort heating element if the temperature equals a temperature of 125°F or more.
- vi. Monitor the daily batch weight of **precious metal bearing material or concentrate**, in tons, for each batch.
- vii. Monitor the daily hours for each batch, during each day of operation.
- viii. Monitor the gauge pressure on **TU4.031**, continuously per batch during operation.
- ix. Monitor the cooling water flow rate entering **MC-005, MC-006, and AC-003** continuously per batch during operation.
- x. Monitor the water temperature exiting the chiller, continuously per batch during operation.
- xi. Monitor the amount of mercury drained from **MC-005 and MC-006** weekly.
- xii. Monitor the exhaust gas temperature exiting **AC-003**, continuously per batch during operation.
- xiii. Monitor **CF-010 and CF-011** for percentage of mercury by weight, quarterly until reaching 50 percent capacity and then monthly until reaching 90 percent capacity.

c. Recordkeeping

The required monitoring, established in Section N.3.b.i through xiii, shall be maintained in a contemporaneous log containing, at a minimum, the following recordkeeping:

- i. The calendar date of any required monitoring.
- ii. The total batch weight of **precious metal bearing material or concentrate** per batch, in tons, for the corresponding date.
- iii. The total daily hours of operation per batch, for the corresponding date.
- iv. The gauge pressure on **TU4.031**, based on a one-hour period, for the corresponding date.
- v. The cooling water flow entering **MC-005, MC-006, and AC-003** based on a one-hour period, for the corresponding date.
- vi. The water temperature exiting the chiller, based on a one-hour period, for the corresponding date.
- vii. The amount of mercury collected from **MC-005 and MC-006**, weekly for the corresponding date.
- viii. The exhaust gas temperature exiting **AC-003**, based on a one-hour period, for the corresponding date.
- ix. The date, time, and weight of each sulfur-impregnated carbon replacement for **CF-010**.
- x. The date, time, and weight of each sulfur-impregnated carbon replacement for **CF-011**.
- xi. The original manufacturer's design specifications for the sulfur impregnated carbon used in **CF-010 and CF-011** shall be kept on site.
- xii. The manufacturer's specified heating temperature profiles for the **TU4.031** shall be kept on site.
- xiii. The percentage of mercury by weight in the sulfur-impregnated carbon, for the corresponding date.
- xiv. The depth of the sample location, in each carbon column, for the corresponding date.
- xv. The date, time, and weight of each of each sulfur-impregnated carbon replacement.
- xvi. The date, time, and corrective action taken for an alarm notification or an interlock shut-down, for the corresponding date.

d. Reporting

Permittee will promptly report to the Director any deviations from the requirements of the Operating Permit to Construct. The report to the Director will include probable cause of all deviations and any action taken to correct deviations. For this Operating Permit to Construct, prompt is defined as submittal of a report within 15 days of said deviation. This definition does not alter any reporting requirements as established for reporting of excess emissions as required under NAC 445B.232 and under condition I.L. of this permit.

***** End of Specific Operating Conditions *****



BUREAU OF AIR POLLUTION CONTROL

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MERCURY OPERATING PERMIT TO CONSTRUCT: PHASE 2

Issued to: Newmont Mining Corporation, Gold Quarry Operations Area.

Section III. Amendments

This permit:

1. Is non-transferable. (NAC 445B.287.3)
2. Will be posted conspicuously at or near the stationary source. (NAC 445B.318.5)
3. Any party aggrieved by the Department's decision to issue this permit may appeal to the State Environmental Commission (SEC) within ten days after the date of notice of the Department's action. (NRS 445B.340)

Signature: **DRAFT**

Issued by: Jonathan McRae
Supervisor, Permitting Branch
Bureau of Air Pollution Control

Phone: (775) 687-9337

Date: April xx, 2012